Editorial Comments—Physiological Scoring: An Aid to Emergency Medical Services Transport Decisions?

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Widespread emergency department overcrowding has been a simmering crisis for more than 20 years. Changing demographics, urbanization, access issues, and other trends have driven emergency department utilization to the point that policy-makers in Ireland recently termed overcrowding a "national crisis."

Many studies have pointed to non-urgent or non-emergent patient visits as a major factor contributing to emergency department overcrowding, which, in turn, is blamed for a variety of problems from prolonged pain and suffering for patients, to staff, family, and patient dissatisfaction.

One potential response to excess emergency department utilization is redirection. Patients intending to attend the emergency department are redirected (or *diverted* or *reoriented*) to another avenue for obtaining urgent, unscheduled care. Redirection is felt to be fraught with problems. Many emergency departments have addressed liability and patient acceptance concerns by offering same-site "urgent care", "fast track", or similar services, often staffed by physician extenders. Patients are triaged, then sent to urgent care if they meet established criteria. This set-up offers comfort to patients and providers in knowing they are close to the emergency department in the event of under-triage.

Redirection of patients who have not had contact with a formal, hospital-based triage system is less certain. No published studies have demonstrated safe, effective methods to triage emergency medical services (EMS) patients to non-emergency department, unscheduled care sites with "turn down" of transport.

Challen and Walter have put before themselves a daunting task, described in "Physiologic Scoring: An Aid to EMS Transport Decisions?" in this issue of *Prehospital and Disaster Medicine*. By adapting the Pandemic Medical Early Warning Score (PMEWS), a physiologic scoring system that also incorporates patient and social factors with prehospital use, they sought to identify patients who might safely either be transported to a non-emergency department alternative by EMS or redirected there. The PMEWS, as the name implies, has been suggested as a triage tool for resource allocation during pandemic influenza. This represents a novel application of this in two ways: (1) it is the first attempt to utilize the score in the prehospital settings; and (2) it is one of the first used for patients with a medical complaint (dyspnea in this case).

Others have shown that prehospital vital signs are useful for identifying patients who need emergent interventions; most of these studies involve trauma patients. The Cape Triage Score is another proposed tool that prehospital providers could use in the triage of undifferentiated patients, thereby unburdening EMS systems.

Challen and Walter point out that their approach seeks to standardize behaviors already occurring with surreptitious application of patient redirection (outside of protocols) by EMS providers who code such "treat and refer" encounters as patient-initiated refusal of transport.

An interesting methodological twist in this study, arises from the term *treat and refer*; treatments routinely rendered by EMS or primary care providers were not considered indicative of requiring an emergency department visit. Presumably, this could mean that patients experiencing an asthma attack with significant improvement or resolution of symptoms after a single

nebulized bronchodilator, by protocol, would be left at scene or referred, rather than transported to the emergency department. Such protocols would demand low rates of under-triage and would rely on application by well-trained personnel.

The authors used a score that contains both physiologic and patient data that are easily collected, including routine vitals signs already familiar to EMS providers. It also incorporated some of the less tangible items (like social isolation, adomicilia, chronic illness, and functional status) in making disposition decisions; physicians already frequently utilize these data in making these decisions. Thus, there would be little need for extensive training or prolonged assessment at the scene.

This retrospective study shows promising, albeit preliminary, results: 31% of patients transported by EMS were felt on review of emergency department records, not to have had an emergent indication for emergency department use. Clearly, this level of reduction could have a salutary effect on emergency department overcrowding if extended across a large population.

As promising as the results may be, further work is needed before this tool can see widespread implementation. For starters, the tool must be validated prospectively, with close follow up of patients not transported to the emergency department to ensure they were, in fact, appropriately directed to other care sources.

The integration of this tool within a coordinated emergency care system could prove to be more difficult. A single, non-disease-specific, physiological-social score (for more chief complaints, age ranges, etc.) will have wider utility than a collection of specific tools, but is likely to be difficult to design and implement within an acceptable level of under-triage. Newer technologies, such as point-of-care laboratory testing, might find an application in this scenario in hopes of offering rapid, objective assessments of physiologic status.

Patients have shown acceptance of redirection in some studies, but only if they can be redirected to sources of care that provide the desired services during convenient hours. Paradoxically, patients with insurance have been shown to forego using primary care services in some cases, leading to higher rates of non-emergent emergency department visits. Other socio-economic issues also affect emergency department use and will impact on the effectiveness of systems like the one in the current study.

We also need to await the demonstrated effectiveness of these measures in improving emergency department crowding, length of stay, and other outcomes. Unfortunately, previous studies have not proven the benefits of redirection of patients to non-urgent sources of care. Like so much of medicine, what seems "physiologically plausible" is not always efficacious when applied to a dynamic system.

Studies like the current research by Challen and Walter are necessary, but not sufficient as we attempt to solve the complex issue of emergency department overcrowding. The authors deserve credit for attempting to move the triage desk (as found in most emergency departments) to the scene of first encounter for many patients: the prehospital EMS service. Development of a tool such as the PMEWS to redirect select patients away from crowded emergency departments (and EMS services) offers a potential avenue of mitigating some of the deleterious effects of rising emergency department utilization.